

TECHNICAL REVIEW DOCUMENT
for
RENEWAL of OPERATING PERMIT 95OPMR010

Colorado Interstate Gas Co., Ft. Morgan Compressor Station
Morgan County
Source ID 0870003

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Revised September and November 2001 and January 2002

I. Purpose:

This document will establish the basis for decisions made regarding the applicable requirements, emission factors, monitoring plan and compliance status of emission units covered by the renewed operating permit proposed for this site. The original Operating Permit was issued March 26, 1997, and expires on March 26, 2002. This document is designed for reference during the review of the proposed permit by the EPA, the public, and other interested parties. The conclusions made in this report are based on information provided in the renewal application submitted March 20, 2001, comments on the draft permit received January 4, 2002 (during the Public Comment period), previous inspection reports and various e-mail correspondence, as well as telephone conversations with the applicant. Please note that copies of the Technical Review Document for the original permit and any Technical Review Documents associated with subsequent modifications of the original Operating Permit may be found in the Division files as well as on the Division website at <http://www.cdphe.state.co.us/ap/Titlev.html>.

On April 16, 1998, the Colorado Air Quality Control Commission directed the Division to implement new procedures regarding the use of short term emission and production/throughput limits on Construction permits. These procedures are being directly implemented in all operating permits that had not started their Public Comment period as of April 16, 1998. All short term emission and production/throughput limits that appeared in the construction permits associated with this facility that are not required by a specific State or Federal standard or by the above referenced Division procedures have been deleted and all annual emission and production/throughput limits converted to a rolling 12 month total. Note that, if applicable, appropriate modeling to demonstrate compliance with the National Ambient Air Quality Standards was conducted as part of the Construction Permit processing procedures. If required by this permit, portable monitoring results and/or EPA reference test method results will be multiplied by 8760 hours for comparison to annual emission limits unless there is a specific condition in the permit restricting hours of operation.

Any revisions made to the underlying construction permits associated with this facility made in conjunction with the processing of this operating permit application have been reviewed in accordance with the requirements of Regulation No. 3, Part B, Construction Permits, and have been found to meet all applicable substantive and procedural requirements. This operating permit incorporates and shall be considered to be a combined construction/operating permit for any such revision, and the permittee shall be allowed to operate under the revised conditions upon issuance of this operating permit without applying for a revision to this permit or for an additional or revised construction permit.

The word “credible” as it is used in the term “credible evidence” shall be applied under the provisions of the permit as defined by Colorado and Federal Rules of Evidence.

II. Description of Source

This facility is a natural gas storage and transmission facility and is classified under the Standard Industrial Classification 4922. Gas is compressed to specification for injection to a field reservoir using five (5) internal combustion engines to power compressor units. Two (2) additional engines on site are utilized in the refrigeration of propane used in heat exchange to extract natural gas liquids from the gas during recovery from the field reservoir. Other activities conducted on site include dehydration of the gas through contact with ethylene glycol, and gravity separation of condensates. Based on the information available to the Division and provided by the applicant, it appears that no modifications to these emission units has occurred since the original issuance of the operating permit. In addition, no new significant emission units have been added to the facility, nor has the list of insignificant activities changed since the original permit issuance

Note that none of the significant emission units are equipped with a control device and therefore the Compliance Assurance Monitoring (CAM) requirements (40 CFR Part 64, as adopted by reference in Colorado Regulation No. 3, Part C, Section XIV) do not apply to any of these units. Note that although Units S006 and S007 (engines) are identified as being equipped with low NO_x design combustion chambers, this is not considered a control device as passive control measures that act to prevent pollutants from forming are not considered control devices under the provisions of 40 CFR Part 64.

The facility is located near the town of Ft. Morgan, CO in an area designated as attainment for all criteria pollutants.

The summary of emissions that was presented in the Technical Review Document (TRD) for the original permit issuance has been modified to more appropriately identify the potential to emit (PTE) since AP-42 emission factors for engines have changed. Emissions (in tons/yr) at the facility are as follows:

Pollutant	Potential to Emit	Actual Emissions
NO _x	518.3	80
CO	854.1	64
VOC	81.5	44
HAPS	20.4	2.3

The PTE in the original TRD was based on emission factors and 8,760 hours per year of operation at the maximum design rate and/or permit limitations. Actual emissions are based on the information in the Division's 2000 inventory.

III. Discussion of Modifications Made

Source Requested Modifications

The source's requested modifications identified in the renewal application were addressed as follows:

Page following cover page

CIG requested that a primary and secondary Responsible Official be identified in the permit for more flexibility in completing the required certifications. The Division will grant this request. However, CIG should be aware that whichever Responsible Official signs the documents, that person becomes the responsible party regarding any non-compliance situation related to the Operating Permit and is subject to both civil and criminal penalties that may be associated with non-compliance situations. In addition, the permit contact was changed.

In addition, on the form 2000-100 submitted with the renewal application, the source indicated that the facility has an SIC code of 4922 (natural gas compression and transmission) rather than 1321 (natural gas processing). This change was also made as requested.

Other Modifications

In addition to the modifications requested by the source, the Division has included changes to make the permit more consistent with recently issued permits, include comments made by EPA on other Operating Permits, as well as correct errors or omissions identified during inspections and/or discrepancies identified during review of this renewal.

The Division has made the following revisions, based on recent internal permit processing decisions and EPA comments, to the Ft. Morgan Renewal Operating Permit with the source's requested modifications. These changes are as follows:

Page following Cover Page

Clarified dates for monitoring and compliance periods, i.e. changed "April - September" to "April 1 - September 30".

Monitoring and compliance periods and report and certification due dates are shown as examples. The appropriate monitoring and compliance periods and report and certification due dates will be filled in after permit issuance and will be based on permit issuance date. Note that the source may request to keep the same monitoring and compliance periods and report and certification due dates as were provided in the original permit. However, it should be noted that with this option, depending on the permit issuance date, the first monitoring period and compliance period may be short (i.e. less than 6 months and less than 1 year).

The citation (above "issued to" and "plant site location") on the page following the cover page provides the incorrect title for the state act. The title will be changed from "Colorado Air Quality Control Act" to "Colorado Air Pollution Prevention and Control Act". In addition, the dates were removed from the citation.

Section I - General Activities and Summary

The language in Condition 1.3 was changed based on comments made by EPA on other Operating Permits.

Added the phrase "as noted" after condition 17 in Condition 1.4 to reflect the changes in Colorado Regulation No. 15 (general condition No. 17).

Removed Condition 1.5 (other operating permits to consider for PSD purposes) and placed it in Section 3 as Condition 3.2.

The language in Condition 2.1 was changed to address comments made by EPA on other operating permits and also to more adequately address the PSD status of the source. The second sentence was removed and language was added regarding modifications that are major by themselves.

Condition 4.1 of the permit indicated that the Ft. Morgan facility was not subject to the Accidental Release Prevention Program (112(r)). However, according the EPA's web page, the source submitted a Risk Management Plan on June 18, 1999 (they were due on June 20, 1999) and has certified in their annual compliance certification that they are subject to the Accidental Release Prevention Program requirements and are meeting the requirements of that program. Therefore, the language has been changed to indicate that this facility is subject to the Accidental Release Prevention Program.

Clarified that the dehydrators are equipped with flash tanks in the emission unit summary table (Condition 5.1). In addition, the serial number for unit E001 was corrected in the emission unit summary (Condition 5.1).

Added a new Section (numbered as 5, emission unit summary renumbered as 6) for compliance assurance monitoring (CAM), note that no emission units are subject to CAM.

A section 6 was added to address the requirements in 40 CFR Part 63 Subpart HHH (National Emission Standards for Hazardous Air Pollutants from Natural Gas Transmission and Storage Facilities). Although the source is not a major source of HAP emissions and is not subject to the control requirements in 40 CFR Part 63 Subpart HHH, the source is subject to certain recordkeeping requirements since the potential to emit to determine applicability is not based on design rates. Therefore these recordkeeping requirements will be included in the permit.

Section II - Specific Permit Terms

Emission Factors

The current permit requires the source to use AP-42 emission factors (Section 3.2) to calculate annual emissions for units E001 – E005. The AP-42 emission factors in the current permit were from Section 3.2, dated July 1993. This version included emission factors in units of lbs/hp-hr or lbs/mmBtu. The current permit includes the AP-42 emission factors in g/hp-hr. Section 3.2 of AP-42 was updated in July 2000 and the permit will be revised to include the updated AP-42 emission factors. The updated AP-42 emission factors are in units of lbs/mmBtu only. For grandfathered or permit exempt engines, the Division allowed the source to use emission factors in units of either g/hp-hr or lbs/mmBtu. CIG has indicated that they want to use emission factors in units of g/hp-hr.

AP-42, Section 3.2 indicates that the lbs/mmBtu emission factor can be converted to g/hp-hr by dividing by the maximum hp and multiplying by the design heat input of the engine. After further review, the Division considers that this method would not be appropriate. Since the AP-42 emission factors are based on test results from specific engines, data from the test results should be converted to the emission factors in the desired units based on the specifics of the engines tested.

The test data on which the AP-42 emission factors is based on is available on EPA's web page at <http://www.epa.gov/ttn/chief/ap42/ch03/related/c03s02.html>. The database of test data was downloaded and reviewed. Test results were available in units of lbs/hp-hr, as well as lbs/mmBtu. The average emission factor from the appropriate population (4-cycle rich burn engines without controls) of test results was included in the operating permit. The emission factors are as follows:

Pollutant	Emission Factor (lbs/hp-hr)	Population
NO _x ¹	2.52×10^{-2}	4-cycle rich burn engines without controls, < 90% load
CO ¹	4.16×10^{-2}	4-cycle rich burn engines without controls, < 90% load
VOC	2.49×10^{-4}	4-cycle rich burn engines without controls – all loads

¹Note that for the cases with loads less than 90%, only those results with an identified horsepower for the engine were used in the average. A review of the lbs/mmBtu emission factors indicates that averaging only those values with identified horsepower appears to be consistent with the published emission factors.

Section II.1: Units E001 and E002

- Reworded Condition 1.1, included an equation to calculate emissions and referenced the database for the revised AP-42 Section 3.2 as the source of the emission factor.
- Changed Condition 1.2 (Table) to indicate that hours of operation are to be monitored. The current version of the permit implies that hp is also monitored.
- The language regarding the monitoring for the 20% opacity requirement (Condition 1.3) was changed to EPA approved language. The standard was rewritten to more closely resemble the language in Regulation No. 1.
- Under “monitoring interval” in Table for Condition 1.3, replaced “annually” with “whenever natural gas is used as fuel”.

Note that no condition is included for the 30% opacity standard, which is applicable during certain operating activities. The specific activities under which the 30% opacity standard applies are: building a new fire, cleaning of fire boxes, soot blowing, startup, any process modification, or adjustment or occasional cleaning of control equipment. Based on engineering judgement the Division considers that building a new fire, cleaning of fire boxes and soot-blowing does not apply to the operation of internal combustion engines. In addition, these engines do not have control devices, so adjustment or occasional cleaning of control devices do not apply to these engines. Process modifications and startup may apply to engines, however, based on engineering judgement, the Division believes that such activities would be unlikely to occur for longer than six minutes. Therefore, the 30% opacity requirement has not been included in the operating permit.

Section II.2: Units E003 – E005

- Reworded Condition 2.1, included an equation to calculate emissions and referenced the database for the revised AP-42 Section 3.2 as the source of the emission factor.
- Changed Condition 2.2 (Table) to indicate that hours of operation are to be monitored. The current version of the permit implies that hp is also monitored.
- The language regarding the monitoring for the 20% opacity requirement (condition 2.3) was changed to EPA approved language. The standard was rewritten to more closely resemble the language in Regulation No. 1.
- Under “monitoring interval” in Table for Condition 1.3, replaced “annually” with “whenever natural gas is use as fuel”.

Note that no condition is included for the 30% opacity standard, which is applicable during certain operating activities. The specific activities under which the 30% opacity standard applies are: building a new fire, cleaning of fire boxes, soot blowing, startup, any process modification, or adjustment or occasional cleaning of control equipment. Based on engineering judgement the Division considers that building a new fire, cleaning of fire boxes and soot-blowing does not apply to the operation of internal combustion engines. In addition, these engines do not have control devices, so adjustment or occasional cleaning of control devices do no apply to these engines. Process modifications and startup may apply to engines, however, based on engineering judgement, the Division believes that such activities would be unlikely to occur for longer than six minutes. Therefore, the 30% opacity requirement has not been included in the operating permit.

Section II.3 – 1100 HP Engines

During the processing of the original operating permit for this facility, the source requested a public hearing in front of the AQCC regarding some of the requirements and periodic monitoring identified in the draft permit. The Division and the source had several discussions and were able to resolve the issues without going to public hearing. The Division and the source agreed upon the language that is contained in the current permit as set forth in a signed Stipulation, dated December 18, 1996. Although the Division is making changes to this language with the renewal, we believe these changes are consistent with monitoring the source has requested in other operating permits for similar sources and address some of the source’s concerns with the issuance of the original operating permit (i.e. removal of short term emission and fuel consumption limits). In addition, some of the revisions are necessary to address comments made by EPA on other operating permits for similar sources.

- Removed short term emission and fuel consumption limits to be consistent

with the Division's short term emission limit policy that was implemented after issuance of the original operating permit for this source.

- Changed the requirement in Condition 3.1 to calculate emissions "by the tenth day of the month" to "by the end of the subsequent month" to be more consistent with other operating permits. In addition, the equation was changed to indicate that the lower heating value of the fuel should be used in the emission calculations.
- Changed the requirement in Condition 3.2 to record fuel consumption "on the first day of the month" to "on the first working day of the month" to be more consistent with other operating permits.
- Changed Condition 3.4 to require that the lower heating value of the fuel be used in emission calculations, as this is consistent with more recent permits issued to the source.
- The portable monitoring language in Condition 3.5 was revised to address EPA comments on other similar operating permits.

Note that in the current permit, the language addressed instances where the portable analyzer may indicate an exceedance of the hourly emission limits due to mechanical malfunction and repair of the engine may be necessary. The language addressed such situations where a temporary replacement engine would be needed until the original engine could be repaired. The Division's portable monitoring language does not address such situations. If the source wishes, they may request that the Division add an alternative operating scenario to address temporary engine replacement and the Division will include the standard language for temporary engine replacement in Section I.2 of the permit.

- The Division removed the requirement to measure and record the exhaust gas oxygen concentration (Condition 3.6) as the Division has determined that recording this information is not necessary.
- The language regarding the monitoring for the 20% opacity requirement (Condition 3.7) was changed to EPA approved language. The standard was rewritten to more closely resemble the language in Regulation No. 1.
- Under "monitoring interval" in Table for Condition 3.7, replaced "annually" with "whenever natural gas is used as fuel".

Note that no condition is included for the 30% opacity standard, which is applicable during certain operating activities. The specific activities under which the 30% opacity standard applies are: building a new fire, cleaning of fire boxes, soot blowing, startup, any process modification, or adjustment or

occasional cleaning of control equipment. Based on engineering judgement the Division considers that building a new fire, cleaning of fire boxes and soot-blowing does not apply to the operation of internal combustion engines. In addition, these engines do not have control devices, so adjustment or occasional cleaning of control devices do not apply to these engines. Process modifications and startup may apply to engines, however, based on engineering judgement, the Division believes that such activities would be unlikely to occur for longer than six minutes. Therefore, the 30% opacity requirement has not been included in the operating permit.

Section II.4 – Glycol Dehydration Units

As specified under the discussion for the engines in Section II.3 of the permit, in order to avoid a public hearing on the initial issuance of this operating permit, the Division and the source agreed upon the language that is contained in the current permit as set forth in a signed Stipulation, dated December 18, 1996. Although the Division is making changes to this language with the renewal, we believe these changes are consistent with monitoring the source has requested in other operating permits for similar sources and address some of the source's concerns with the issuance of the original operating permit (i.e. removal of short term emission and fuel consumption limits). In addition, some of the revisions are necessary to address comments made by EPA on other operating permits for similar sources.

- Removed short term emission and throughput limits.
- A newer version of GlyCalc is now available. The permit will be written to require that GlyCalc version 4.0 or higher shall be used to calculate emissions.
- Various language changes were made to avoid "any credible evidence (ACE) busting language" that EPA had indicated they would object to. In addition, the format of Condition 4.1 was changed to clarify the monitoring requirements. The language and format is consistent with the dehydrator monitoring language in other permits issued to the source.
- The requirement to calculate the average monthly parameter value and perform GLYCalc by the 10th of the month was changed to require that these activities be performed at the end of the subsequent month.
- Added language regarding how to calculate a rolling twelve month total when a GLYCalc run is triggered. This language is similar to the language in other permits issued to the source.
- The glycol circulation rate was removed from the comparison criteria table and the requirement to record the circulation rate daily was also removed. In the Division's original negotiations with CIG and other companies on the

periodic monitoring requirements for dehydrators, it was determined that the recirculation pumps could be one of two types, electric or gas driven. The pump rate for the gas driven pumps could be increased simply by increasing gas flow to the pump. While the electric driven pumps would have to be disassembled to increase the pump rate. The glycol pumps for the dehydrators are electric and therefore the maximum circulation rate is included as an assumed parameter (Condition 4.1.3).

- The permit specified (Condition 4.1.2) that following the first year after initial permit issuance that an extended gas analysis would be conducted at least twice during recovery operations and that the analyses shall be no less than 4 months apart. If these analyses indicated that the BTEX concentrations did not exceed the comparison criteria, the frequency of extended gas analyses will move to semi-annually. The September 23, 1998 inspection report indicates that the first two extended gas analysis showed BTEX concentrations below the comparison criteria. Therefore, CIG has been conducting annual extended gas analysis. The Division will change the language in the permit to require annual extended gas analyses and that the frequency of analyses will be increased to semi-annually if any analyses shows a BTEX concentration above the comparison criteria.
- Construction permit numbers were indicated in the citations under Condition 4.1 and 4.2. The citation notes that the construction permit conditions were modified under the provisions of Section I, Condition 1.3, based on the worst case dehydrator analysis.
- Added a condition to record hours of operation. The hours of operation shall be used to calculate a rolling twelve month total when a GLYCalc run is triggered.

Section II.5 – Fugitive Emissions of VOC from Equipment Leaks

- Fugitive VOC emissions were permitted as a combined construction/operating permit. The citation in Condition 5.1 was changed to more appropriately address that.
- “EPA’s Protocol for Equipment Leak Emission Estimates”, was updated in 1995. These revised emission factors will be included in the permit. Note that these emission factors predict lower emissions.
- Although it is implied in the permit, the permit was modified to clarify that the emission calculations in Condition 5.1 shall be conducted on an annual basis.
- Revised Condition 5.1 to specify that a component count shall be conducted within one year of renewal permit issuance, rather than original permit

issuance. The language specifying that the component count shall be conducted every five years thereafter shall remain in the permit.

Section III – Permit Shield

- The title for Section 1 was changed from “Specific Conditions” to “Specific Non-Applicable Requirements” and a new section 3 was added for subsumed (streamlined) conditions. Note that there are no streamlined conditions.
- Based on comments made by EPA on another permit, the following statement was added after the introductory sentence in Section 1 “This shield does not protect the source from any violations that occurred prior to or at the time of permit issuance”.
- In addition, the following phrase “In addition, this shield does not protect the source from any violations that occur as a result of any modification or reconstruction on which construction commenced prior to permit issuance” was added to the end of the introductory paragraph in Section 1.
- Based on comments made by EPA on another permit, the following phrase was added to the beginning of the introductory sentence “Based upon the information available to the Division and supplied by the applicant”.
- Based on comments made by EPA on another permit, the phrases regarding reconstruction or modification under the shield for NSPS K, Ka, Kb and KKK were removed. It is EPA’s opinion that the Division may not have all of the information available to determine whether a reconstruction or modification has occurred and as a result the justification should not address modifications or reconstructions.

Section IV - General Conditions

- Added an “and” between the Reg 3 and C.R.S. citations in General Condition 3 (compliance requirements).
- The language contained in the Common Provisions Regulation regarding upsets was included in General Condition 4.
- The citation in General Condition 7 (fees) was changed to cite the Colorado Revised Statute. In addition, any specific identification of a fee (i.e. \$100 APEN fee) or citation of Reg 3 was removed and replaced with the language “...in accordance with the provisions of C.R.S. [appropriate citation].”
- The citation in General Condition 13 (odor) was corrected. In addition, the phrase “Part A” was added to the citation for Condition 13 (odor). Colorado

Regulation No. 2 was revised and a Part B was added to address swine operations. Colorado Regulation No. 2, Part B should not be included as a general condition in the operating permit.

- Condition 17 (ozone depleting compounds) was revised to reflect updates made to Colorado Regulation No. 15.
- The citation for Condition 25 (significant permit modifications) was corrected.
- Added the requirements in Colorado Regulation No. 7, Section V.B (disposal of volatile organic compounds) to General Condition 28.

Appendices

- First Page of Appendices – The phrase “except as otherwise provided in the permit” was added after the word “enforceable” in the disclaimer at the request of EPA.
- Appendix B and C were replaced with revised Appendices. Clarified that the dehydrators are equipped with flash tanks and corrected the serial number for unit E001 in the tables for these appendices.
- The EPA addresses in Appendix D were corrected.